

WE CLAIM:

1. A system for spooling and unspooling a flexible conduit configured to contain a flow of a pressurized fluid, comprising:

a reel drum onto which the flexible conduit can be spooled;

a generator operatively connected to a flow path within the conduit, the generator configured to receive a pressurized fluid flow therethrough and convert kinetic energy of the pressurized fluid flow into electricity;

a battery operatively connected to the generator and configured to receive and store the electricity; and

a motor for selectively driving rotation of the reel drum, the motor being connected to the battery and configured to receive electrical power from the battery.

2. The system of Claim 1, wherein the conduit comprises a water hose.

3. The system of Claim 1, wherein the pressurized fluid is a liquid.

4. The system of Claim 1, wherein the pressurized fluid is a gas.

5. The system of Claim 1, wherein the generator comprises a turbine having a body rotatable about an axis in-line with the flow path within the conduit, the body having a length and at least one vane extending outward from the body and into the flow path, wherein the at least one vane is adapted to receive a force thereon from the fluid flow to rotate about the axis.

6. The system of Claim 5, wherein the at least one surface of the at least one vane is curved.

7. The generator of Claim 6, wherein the at least one vane extends substantially continuously along the length of the body.

8. The system of Claim 1, wherein the generator comprises an impeller having a body disposed adjacent the flow path within the conduit, the impeller rotatable about an axis and having at least one paddle extending radially outward from the body and into the flow path, the paddle configured to receive a force thereon from the fluid flow to rotate about the axis.

9. The flow system of Claim 1, further comprising an electrical actuator configured to actuate a valve communicating with the flow path to selectively open or close the flow path.

10. The flow system of Claim 9, wherein the valve is configured to permit selective setting of the size of a flow orifice of the flow path to any of a multiplicity of positions between a completely open position and a completely close position.

11. A conduit managing system comprising:

an electrically powered hose reel;

a fluid flow control device including a fluid flow path extending between an inlet and an outlet of the device, an electrically actuated valve disposed in-line with the flow path and configured to selectively open or close the flow path, and electronics configured to actuate the valve;

a generator configured to convert the kinetic energy of a pressurized fluid flowing through the flow path into electricity; and

an electrical circuit for delivering electricity from the generator to the fluid flow control device and the hose reel.

12. The flow control system of Claim 11, further comprising a remote control configured to transmit a signal to the electronics from a remote location to actuate the electrically actuated valve and/or the hose reel.

13. The flow control system of Claim 11, wherein the electrical flow circuit comprises a battery storing electricity from the generator.

14. The flow control system of Claim 11, wherein the fluid flow control device is configured to permit selective setting of the size of a flow orifice of the flow path to any of a multiplicity of positions between a completely open position and a completely closed position.

15. A hose control system comprising:

a reel for spooling and unspooling a flexible fluid conduit;

a motor connected to the reel to drive rotation of the reel;

an electrically actuated flow control device, the flow control device configured to selectively allow a pressurized fluid flow therethrough; and

a generator adapted to harness the energy of the pressurized fluid flow to electrically charge a battery connected to both the flow control device and the motor, wherein the battery is configured to provide power to both the flow control device and the motor.

16. A method of spooling a hose, comprising:

providing a flow control device connected to the hose, the device comprising a flow path in communication with the hose and configured to receive a pressurized fluid flow therethrough, the device including an electrically actuated valve in communication with the flow path;

providing a generator, at least a portion of which is disposed in the flow path, the generator configured to convert kinetic energy of the pressurized fluid flow into electrical energy;

charging a battery connected to the generator with the electrical energy; and

providing an electrical connection from the battery to a hose reel to electrically power rotation of the hose reel with the battery.

17. The method of Claim 16, further comprising selectively actuating the electrically actuated valve with power from the battery to open and close the flow path.

18. The method of Claim 17, wherein selectively actuating comprises wirelessly signaling the flow control device.

19. The method of Claim 17, wherein selectively actuating comprises receiving a wireless signal for controlling the rotation of the hose reel.

20. A method of reeling or unreeling a hose and regulating a pressurized fluid flow through the hose, comprising:

providing a flow control device connected to a hose, the device having a flow path;

harnessing the energy of a pressurized fluid flow through the hose to generate electricity;

charging a battery with the electricity;

powering the reeling or unreeling of the hose with electricity from the battery;

and

providing electrical power from the battery to the flow control device to selectively allow flow through the flow path.

21. A method for electrically powering a reel from a pressurized fluid flow through a conduit, comprising:

providing a conduit defining a flow path configured to receive a pressurized fluid flow therethrough from a mechanical source; harnessing the energy of the pressurized fluid flow to generate electricity; and

powering rotation of the reel using the generated electricity.

22. The method of Claim 21, further comprising charging a battery with the generated electricity.

23. The method of Claim 21, wherein the mechanical source is a pump.

24. The method of Claim 21, further comprising operating an electrical device associated with the fluid flow with the generated electricity.

25. The method of Claim 24, wherein the electrical device comprises a valve capable of selectively opening and closing the flow path.

26. The method of Claim 21, wherein powering rotation of the reel comprises providing electrical power to a motor connected to the reel.